

## **REMARKS/ARGUMENTS**

Reconsideration of this application is requested. Claims 1-7, 10-16, 18-20, 47-60 and 62-64 are in the case.

### **I. CLAIM OBJECTION**

Claim 19 has been objected to as improperly dependent on cancelled claim 17. In response, claim 19 has been amended to as to be dependent on claim 1.

### **II. THE 35 U.S.C. §112, SECOND PARAGRAPH, REJECTION**

Claims 3, 4, 49 and 50 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for the reasons detailed in paragraph 3 on page 2 of the Action. In response, and without conceding to the merit of the rejection, claims 3, 4, 49 and 50 have been cancelled without prejudice. Withdrawal of the 35 U.S.C. §112, second paragraph, rejection is now respectfully requested.

### **III. THE OBVIOUSNESS REJECTIONS**

Claims 1-6, 10, 11, 47-52, 54 and 55 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Re Patent 24,485 to Kittleson et al in view of U.S. Patent 4,461,743 to Chowdhury et al. That rejection is respectfully traversed.

The invention of the present application is directed to a reactor for containing a solid catalyst for heterogeneous gas-phase reactions. The reactor is a fluid bed reactor comprising a grid and into which reactor there extend more than one inlet pipes for a molecular oxygen-containing gas. The inlet pipes have means for surrounding a

substantial portion of the pipes in the reactor with an inert fluid, and the inlet fluid surrounding the inlet pipes is sealed.

Kittleson relates to a method of carrying out homogeneous, non-catalytic vapor-phase chain-type reactions, such as oxidations or halogenations, wherein reactants are passed through a bed of fluidized inert solid particles. Although one described embodiment of the invention shows a reactor comprising more than one oxygen inlet pipes (Figure 1), there is no disclosure or suggestion in Kittleson of a surround means for surrounding the oxygen inlet pipes with an inert fluid, as presently claimed.

Chowdhury describes an apparatus for injecting an oxygen-enriched gas and purge water into a gas-liquid reaction medium within a wet oxidation reactor. The Examiner asserts that one of ordinary skill would seek to combine these two documents. The Applicant disagrees.

One of ordinary skill would not have been motivated to combine the disclosures of Chowdhury to Kittleson for the following reasons. Kittleson is directed to solving the problem of overheating in homogeneous gas-phase oxidation reactions (column 3, lines 45-47). Kittleson addresses the problem by employing a fluidized bed of inert solid particles (column 5, lines 3-5). The gaseous reactants are passed upwardly through the bed and cause fluidization of the inert solid particles (column 6, lines 18-21). Thus, for Kittleson to work, it is essential that the reactants are gaseous and that there is a fluidized bed of inert solid particles, which acts to remove heat (column 13, lines 47-48).

If a mixed hydrocarbon-oxygen feed is used, it may be pre-heated. At column 7, lines 1-2, it is stated that the preheat temperature is between 150 and 250°C (i.e. below the initiation temperature of the reaction).

In direct contrast to Kittleson, Chowdhury relates to a gas-liquid oxidation reaction carried out in liquid water (column 1, lines 7-10). Chowdhury employs an oxygen injection nozzle for injecting a mixture of purge water and oxygen into the reactor (column 2, lines 19-22). The water is discharged into the reactor as a liquid (column 2, lines 25-26; 38-40).

The skilled person would understand that injection of liquid water into the bed of inert solids of Kittleson would **prevent** fluidization of the particles, or would **defluidize** the particles. The invention of Kittleson would therefore not be able to work. Hence, the skilled person would not have been motivated to combine Chowdhury and Kittleson.

Furthermore, Chowdhury is directed to the injection of liquid water and prevention of evaporation of the liquid water prior to injection into the reactor. The temperature of the water (column 5, lines 1-2) is required to be less than 250°F (121 °C) and preferably less than 150°F (66°C) in order to prevent substantial evaporation of the water. However, Kittleson requires a preheat temperature of between 150 and 250°C. At such temperatures, substantial evaporation of water would occur.

In light of the above, it is clear that the inventions of Kittleson and Chowdhury are directly opposed to each other. For this further reason, the skilled person would not have been motivated to apply the disclosure of Chowdhury to Kittleson.

Based on the above, there would have been no motivation for one of ordinary skill to combine the disclosures of Kittleson and Chowdhury. Absent any such motivation, it is clear that a *prima facie* case of obviousness has not been generated in this case. Withdrawal of the outstanding obviousness rejection based on Chowdhury and Kittleson is respectfully requested.

Claims 7 and 23 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kittleson in view of Chowdhury and further in view of Japanese Patent 55-36673 to Takeuchi et al. Claims 12-16 and 56-60 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kittleson in view of Chowdhury and further in view of U.S. Patent 4,582,120 to Walters. Claims 18 and 62 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kittleson in view of Chowdhury and further in view of U.S. Patent 5,801,265 to Wagner et al. Claims 19, 20, 63 and 64 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kittleson in view of Chowdhury and further in view of U.S. Patent 2,654,658 to Marshall, Jr.

Each of the above obviousness rejections is respectfully traversed. As noted earlier, the invention as claimed is not rendered obvious in light of the combined disclosures of Kittleson and Chowdhury. The remaining secondary references relied on by the Examiner in regard to various dependent claims do not cure the deficiencies of the two primary references. Withdrawal of all of the remaining obviousness rejections is accordingly respectfully requested.

#### IV. **ANTICIPATION**

On page 11, of the Action, the Examiner has asserted that the arrangement described in U.S. Patent 4,191,539 to Patel et al "would have anticipated Applicant's invention as recited in claim 1". However, no anticipation rejection is made by the Examiner in the outstanding Official Action. Notwithstanding this, Patel does not anticipate the invention as claimed. Patel discloses only one inlet pipe (44) into the reactor. The invention of the present application requires more than one inlet pipe into

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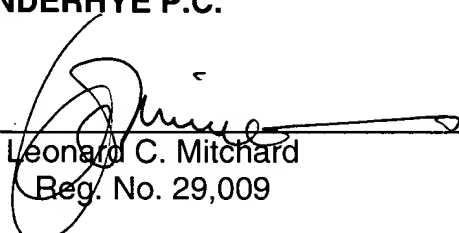
the reactor. Thus, Patel does not anticipate (or suggest) the presently claimed invention.

Favorable action on this application is awaited.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: \_\_\_\_\_

  
Leonard C. Mitchard  
Reg. No. 29,009

LCM:lfm  
1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100